5.0 FUTURE BASELINE NOISE EXPOSURE MAP

The FAR Part 150 process requires a thorough examination of the future (five-year) baseline aircraft noise impacts. Future baseline noise impacts are those that reflect projected noise conditions without the use of any additional noise mitigation strategies. For Lunken, future baseline noise impacts were developed to incorporate aircraft and operational characteristics projected for the year 2007. Existing noise abatement procedures were assumed in the identification of future 2007 noise impacts.

The future baseline noise impacts, as with the existing noise impacts, were calculated through the use of the FAA's Integrated Noise Model (INM) Version 6.1. As was the case with the Existing NEM, the Future Baseline NEM was developed to reflect the DNL 55dB, 60dB, 65 dB, 70 dB, and 75 dB noise levels around the Airport. This chapter presents aircraft activity levels and an operational assumption used to develop the Future Baseline NEM, and then identifies the incompatible land uses associated with the Airport's future baseline aircraft noise impacts.

5.1 AIRCRAFT ACTIVITY

Available projections of aviation activity at Lunken were reviewed to estimate activity on an average annual day in 2007. The FAA's Terminal Area Forecast (TAF) and the forecast developed for Lunken in the Master Plan Study were both reviewed. As further detailed in Appendix B, these forecasts were adjusted to reflect recent events and changes pertaining to aircraft activity at Lunken. The adjusted forecast projects operational levels, fleet mix, stage length, and day/night operations split; these characteristics of future activity at Lunken are described below.

5.1.1 Operational Levels

Projections of the Airport's 2007 operational levels are summarized by aircraft category in **Table 5.1-1**. While total daily activity tends to vary throughout the year, Part 150 analyses are based on an average annual day (i.e., annual totals divided by 365 days)

of activity. This is consistent with the methodology developed in FAA Advisory Circular 150/5020-1, *Noise Control and Compatibility Planning for Airports*.

TABLE 5.1-1
Cincinnati Municipal-Lunken Airport
FUTURE (2007) ANNUAL AND DAILY AIRCRAFT OPERATIONS

Aircraft Categories	Annual	Average Day
Single-engine Piston/Turboprop	80,709	221
Multi-engine Piston	21,094	58
Multi-engine Turboprop	7,180	20
Business Jet	37,033	101
Helicopter	2,518	7
Military	419	1
Total	148,953	408

Source: PB Aviation, Projection of Activity, October 2002

As shown in Table 5.1-1, daily activity for all aircraft categories will increase from 362 operators in 2002 to 408 operators in 2007. This increase represents an annual average growth rate of 2.5 percent during the five-year period. Business jet operations are anticipated to increase more than any other categories, increasing from an average of 83 daily operations in 2002 to 101 in 2007 – an average increase of 4.3 percent per year. Single-engine piston/turboprop operations are projected to increase from an average of 197 daily operations in 2002 to 221 in 2007 – an average increase of 2.4 percent per year. Slower growth is anticipated for multi-engine piston and multi-engine turboprop operation (1.1 percent per year). Helicopter and military operations will remain a small percentage of operations per year at Lunken.

5.1.2 Fleet Mix

Fleet mix refers to the various categories of aircraft operating at an airport. **Table 5.1-2** lists the aircraft fleet mix assumed in developing Lunken's Future Baseline NEM.

TABLE 5.1-2

Cincinnati Municipal-Lunken Airport

FUTURE (2007) AIRCRAFT FLEET MIX

Category/ Aircraft Types	Noise Level Designator[1]	INM Designation[2]	Percent of Fleet
Single-engine Piston/Turboprop			
Beechcraft 23	N/A	GASEPF	18.99%
Cessna 172	N/A	CNA172	12.43%
Cessna 206	N/A	CNA206	17.38%
Piper 46	N/A	GASEFV	5.38%
Sub-total			54.18%
Multi-engine Piston			
Piper 31	N/A	BEC58P	14.16%
Sub-total			14.16%
Multi-engine Turboprop			
Beechcraft 2000	3	SD330	2.31%
Beechcraft 300	N/A	DHC6	2.51%
Sub-total			4.82%
Business Jet			
Cessna 525	3	CNA500	0.88%
Cessna 650	3	CIT3	0.88%
Cessna 750	3	CNA750	1.12%
Canadair CL-60	3	CL600	1.55%
Fokker 70	3	F10062	1.11%
Falcon 20	2	FAL20	0.65%
Cessna 560	3	MU3001	8.58%
Gulfstream III	2	GIIB	0.91%
Gulfstream IV	3	GIV	1.56%
LearJet 35	3	LEAR35	7.63%
Sub-total			24.87%
Helicopter			
Bell 206	N/A	B206L	0.50%
BK 117	N/A	BO105	1.19%
Sub-total			1.69%
Military			
C-130	3	C130	0.28%
Sub-total			0.28%

Source: PB Aviation, Projection of Activity, October 2002
Lunken Airport Air Traffic Control Tower, Flight Strips.

1. For purposes of showing compliance with federal aircraft noise guidelines, FAR 36 assigns a "noise designator"(Stage 1, Stage 2, and Stage 3) for all transport category large airplanes and turbojet powered aircraft.
2. This column identifies the aircraft noise database identifier for the INM. For aircraft not included in the INM database, an FAA approved substitute aircraft is identified.

5.1.3 Stage Length

Stage length refers to the distance an aircraft travels. Each stage is associated with a takeoff weight that represents a typical passenger load and fuel required for each trip. The INM accounts for these various load factors based upon the initial distance traveled.

Table 5.1-3 summarizes the stage length distribution for all aircraft categories in 2007.

TABLE 5.1-3
Cincinnati Municipal-Lunken Airport
FUTURE (2007) STAGE LENGTH PERCENTAGE

Category	Stage 1	Stage 2	Stage 3	Stage 4	Total
Single-engine Piston/Turboprop	100%	0%	0%	0%	100%
Multi-engine Piston	97%	3%	0%	0%	100%
Multi-engine Turboprop	86%	14%	0%	0%	100%
Business Jet	76%	18%	3%	3%	100%
Helicopter	100%	0%	0%	0%	100%
Military	100%	0%	0%	0%	100%

Source: Lunken Airport Air Traffic Control Tower, Flight Strips.
Aviation Planning Associates, Inc., Master Plan Update, Technical Report, March 1989.

Key: Stage 1 = 0 – 500 nautical miles
Stage 2 = 500 – 1,000 nautical miles
Stage 3 = 1,000 – 1,500 nautical miles
Stage 4 = 1,500 nautical miles or more

5.1.4 Day/Night Operations

Evaluation of nighttime Airport operations is important due to the increased sensitivity to noise occurring during sleeping hours. To account for increased nighttime sensitivity, the INM applies a 10-decibel penalty to nighttime aircraft flights. The Future Baseline NEM reflects this penalty and incorporates projected operations by each aircraft category that may be expected between the hours of 10:00 p.m. and 7:00 a.m. The assumptions concerning the daytime/nighttime operations split at Lunken are shown in **Table 5.1-4**.

TABLE 5.1-4
Cincinnati Municipal-Lunken Airport
FUTURE (2007) DAY/NIGHT OPERATIONS

Category	Annual	Average Annual Day				
		Daytime[1]		Nighttime[2]		Total Operations
	Operations	Operations	Percentage	Operations	Percentage	
Single-engine Piston/Turboprop	80,709	206	93%	15	7%	221
Multi-engine Piston	21,094	54	93%	4	7%	58
Multi-engine Turboprop	7,180	19	93%	1	7%	20
Business Jet	37,033	94	93%	7	7%	101
Helicopter	2,518	6	93%	1	7%	7
Military	419	1	100%	0	0%	1
Total	148,953	380		28		408

Sources: PB Aviation, Projection of Activity, October 2002

[1]. Daytime = 7:00 a.m. to 9:59 p.m.
[2]. Nighttime = 10:00 p.m. to 6:59 a.m.

These assumptions are reflected in Future Baseline NEM and vary slightly from the assumptions used for the existing conditions. Overall, a small increase in the number of nighttime operations is expected and amounts to approximately two additional operations on an average annual day. The number of nighttime operations by single-engine piston/turboprop and business jet aircraft is expected to increase, and other categories remain unchanged.

5.1.5 Run-Up Operations

INM uses a single directivity pattern to calculate noise around an airplane on a run-up pad. The directivity pattern is symmetric around the longitudinal axis of the airplane. The run-up noise level depends upon aircraft type, run-up pad location, heading of the airplane, average duration of the run-up event, and the number of times the run-up event occurs during the day and night time periods.

As previously described in Chapter 4.0, there is one run-up pad used at the Airport. The run-up pad is in the holding area near Runway 25. The future baseline NEM assumes that run-ups will continue to be conducted at this location. The future

baseline NEM also assumes that four percent of based aircraft will conduct maintenance run-up operations. **Table 5.1-5** shows run-up operations at the Airport.

TABLE 5.1-5
Cincinnati Municipal-Lunken Airport
MAINTENANCE RUN-UP OPERATIONS

Category	Based Aircraft	Operations	Duration Per Operation (second)
Single-engine Piston/Turboprop	156	6.24	1,800
Multi-engine Piston	30	1.2	1,800
Multi-engine Turboprop	23	0.92	1,800
Business Jet	78	3.12	1,800
Helicopter	3	0.12	1,800
Military	0	0	0
Total	290	11.6	9,000

Source: PB Aviation, Master Plan Update, 2003

5.2 OPERATIONAL PROCEDURES

Operations data, including runway and flight track utilization, were obtained from discussions with ATC personnel, analyses of flight strips, AOMS, and meteorological data, airspace routing procedures, and on-site observations.

5.2.1 Runway Utilization

Future runway-use patterns are expected to remain unchanged because there are no airfield improvements planned by 2007. **Tables 5.2-1** to **5.2-4** present estimated runway use by category of aircraft and type of operation (i.e., arrival or departure) for the future baseline case.

TABLE 5.2-1

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE ARRIVAL RUNWAY UTILIZATION – DAYTIME

Runway End	SEP	MEP	METP	BJ	HELI	MIL
7	2%	--	--	--	--	--
25	10%	10%	10%	8%	--	--
3L	15%	2%	--	--	--	--
21R	55%	6%	--	--	--	--
3R	8%	22%	25%	25%	--	25%
21L	10%	60%	65%	67%	--	75%
Total	100%	100%	100%	100%	--	100%

Source: Cincinnati Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
Aviation Planning Associates, Inc., Master Plan Update, Technical Report, March 1989.
PB Aviation, On-site observations and interview with LUK ATC personnel.

TABLE 5.2-2

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE ARRIVAL RUNWAY UTILIZATION – NIGHTTIME

Runway End	SEP	MEP	METP	BJ	HELI	MIL
7	--	--	--	--	--	--
25	10%	5%	--	--	--	--
3L	--	--	--	--	--	--
21R	--	--	--	--	--	--
3R	25%	25%	25%	25%	--	25%
21L	65%	70%	75%	75%	--	75%
Total	100%	100%	100%	100%	--	100%

Source: Cincinnati Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
Aviation Planning Associates, Inc., Master Plan Update, Technical Report, March 1989.
PB Aviation, On-site observations and interview with LUK ATC personnel.

TABLE 5.2-3

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE DEPARTURE RUNWAY UTILIZATION – DAYTIME

Runway End	SEP	MEP	METP	BJ	HELI	MIL
7	5%	2%	--	--	--	--
25	10%	10%	10%	8%	--	--
3L	15%	2%	--	--	--	--
21R	55%	6%	--	--	--	--
3R	5%	20%	25%	25%	--	25%
21L	10%	60%	65%	67%	--	75%
Total	100%	100%	100%	100%	--	100%

Source: Cincinnati Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
Aviation Planning Associates, Inc., Master Plan Update, Technical Report, March 1989.
PB Aviation, On-site observations and interview with LUK ATC personnel.

TABLE 5.2-4

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE DEPARTURE RUNWAY UTILIZATION – NIGHTTIME

Runway End	SEP	MEP	METP	BJ	HELI	MIL
7	2%	--	--	--	--	--
25	5%	2%	--	--	--	--
3L	--	--	--	--	--	--
21R	--	--	--	--	--	--
3R	23%	25%	25%	25%	--	25%
21L	70%	73%	75%	75%	--	75%
Total	100%	100%	100%	100%	--	100%

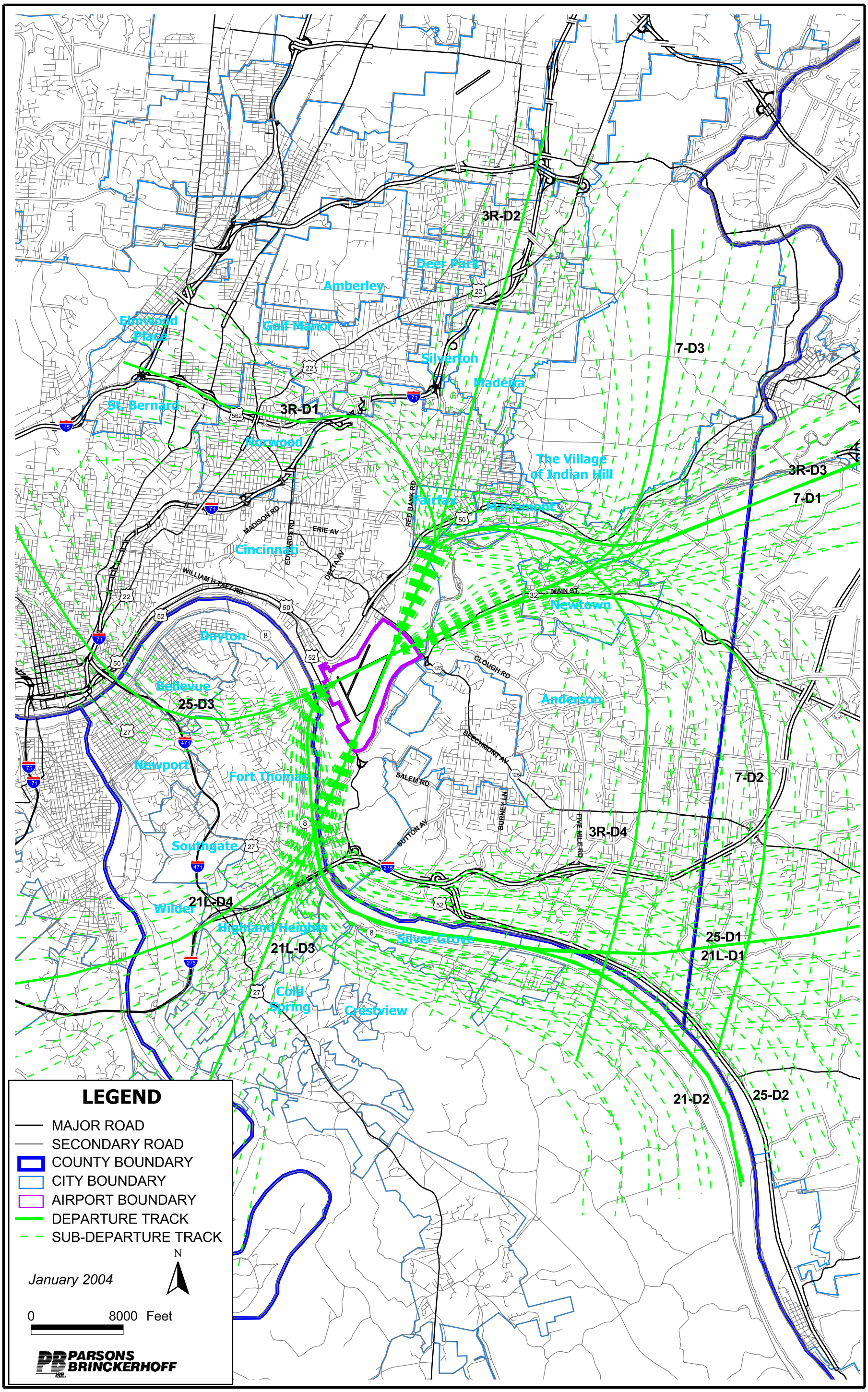
Source: Cincinnati/Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
Aviation Planning Associates, Inc., Master Plan Update, Technical Report, March 1989.
PB Aviation, On-site observations and interview with LUK ATC personnel.

As previously noted in Chapter 4.0, many factors can significantly alter the flow of the airfield and runway use. The runway utilizations that are presented in the Tables 5.2-1 through 5.2-4 are estimations of average runway end use for the future. Consequently, considerable variance from the utilizations can occur on any given day.

5.2.2 Flight Tracks

A flight track is the projection on the ground of an aircraft's path in the sky. Because of meteorological conditions, aircraft types, stage lengths, and pilot judgment, no two flight tracks are exactly the same.

Information gathered from interviews with ATC personnel and the sample AOMS data were both used to identify generalized flight tracks necessary for input into the INM, including existing departure, arrival, and touch-and-go flight tracks. **Exhibits 5.2-1, 5.2-2,** and **5.2-3** illustrate the future departure, arrival, and touch and go flight tracks used in the future baseline case.



CINCINNATI MUNICIPAL-LUNKEN AIRPORT PART 150 STUDY

FUTURE DEPARTURE TRACKS

EXHIBIT 5.2-1

PB AVIATION

Arlington Heights
Reading
Deer Park
Amberley
Golf Manor
Elmwood Place
St. Bernard
Norwood
Silverton
Madeira
The Village of Indian Hill
Fairfax
Mariemont
Cincinnati
Newtown
Dayton
Bellevue
Anderson
Newport
Fort Thomas
Southgate
Wilder
Highland Heights
Silver Grove
Melbourne
Cold Spring
Crestview

21L-A1
21L-A2
21L-A3
25-A1
21L-A4
25-A2
21L-A5
25-A3
21L-A6
7-A1
7-A2
3R-A1
3R-A2
3R-A3
3R-A4

MADISON RD
EDWARDS RD
ERIE AV
DIXIE AV
RED BANK RD
WILLIAM H TAFT RD
MAIN ST
CLOUGH RD
BEECHMONT AV
SALEM RD
BURNEY LN
SUTTON AV
FIVE MILE RD

LEGEND

- MAJOR ROAD
- SECONDARY ROAD
- COUNTY BOUNDARY
- CITY BOUNDARY
- AIRPORT BOUNDARY
- ARRIVAL TRACK
- SUB-ARRIVAL TRACK

January 2004

N

0 8000 Feet

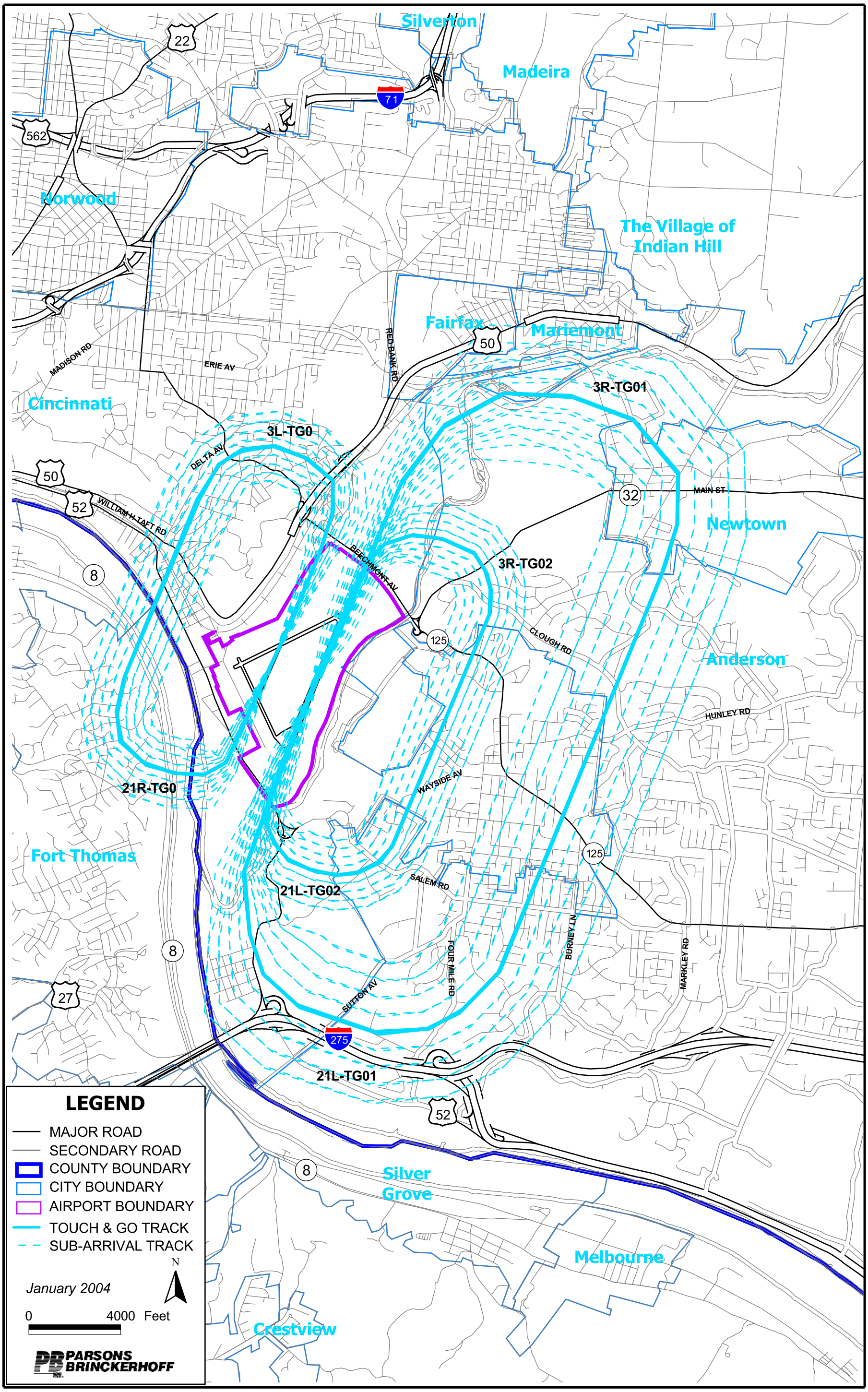
PB PARSONS BRINCKERHOFF

CINCINNATI MUNICIPAL-LUNKEN AIRPORT PART 150 STUDY

FUTURE ARRIVAL TRACKS

EXHIBIT 5.2-2

PB AVIATION



CINCINNATI MUNICIPAL-LUNKEN AIRPORT PART 150 STUDY

FUTURE TOUCH AND GO TRACKS

EXHIBIT 5.2-3

PB AVIATION

5.2.3 Flight Tracks Utilization

The allocation of future aircraft operations to generalized flight tracks is based on the analysis conducted for the existing 2002 noise analysis. Flight track utilization assumptions for the future baseline case are presented in **Tables 5.2-5** to **5.2-8**.

TABLE 5.2-5

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE ARRIVAL FLIGHT TRACK USE – DAYTIME

Runway End	Flight Tracks	SEP	MEP	METP	BJ	HELI	MIL
7	7-A1	50%	50%	50%	50%	--	--
	7-A2	50%	50%	50%	50%	--	--
	Total	100%	100%	100%	100%	--	--
25	25-A1	25%	25%	55%	55%	--	--
	25-A2	50%	50%	20%	20%	--	--
	25-A3	25%	25%	25%	25%	--	--
	Total	100%	100%	100%	100%	--	--
3L	3L-TGO	100%	100%	--	--	--	--
	Total	100%	100%	--	--	--	--
21R	21R-TGO	100%	100%	--	--	--	--
	Total	100%	100%	--	--	--	--
3R	3R-A1	20%	20%	18%	18%	--	--
	3R-A2	20%	20%	20%	20%	--	--
	3R-A3	45%	40%	52%	52%	--	100%
	3R-A4	10%	5%	9%	9%	--	--
	3R-TGO1	--	--	1%	1%	--	--
	3R-TGO2	5%	15%	--	--	--	--
	Total	100%	100%	100%	100%	--	100%
21L	21L-A1	5%	5%	5%	5%	--	--
	21L-A2	40%	35%	38%	38%	--	100%
	21L-A3	10%	10%	20%	20%	--	--
	21L-A4	20%	15%	11%	11%	--	--
	21L-A5	10%	10%	12%	12%	--	--
	21L-A6	10%	10%	13%	13%	--	--
	21L-TGO1	--	--	1%	1%	--	--
	21L-TGO2	5%	15%	--	--	--	--
	Total	100%	100%	100%	100%	--	100%

Source: Cincinnati/Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
PB Aviation, On-site observations and interview with LUK ATC personnel.

TABLE 5.2-6

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE ARRIVAL FLIGHT TRACK USE – NIGHTTIME

Runway End	Flight Tracks	SEP	MEP	METP	BJ	HELI	MIL
7	7-A1	--	--	--	--	--	--
	7-A2	--	--	--	--	--	--
	Total	--	--	--	--	--	--
25	25-A1	25%	25%	55%	55%	--	--
	25-A2	50%	50%	20%	20%	--	--
	25-A3	25%	25%	25%	25%	--	--
	Total	100%	100%	100%	100%	--	--
3L	3L-TGO	--	--	--	--	--	--
	Total	--	--	--	--	--	--
21R	21R-TGO	--	--	--	--	--	--
	Total	--	--	--	--	--	--
3R	3R-A1	20%	20%	18%	18%	--	--
	3R-A2	20%	20%	20%	20%	--	--
	3R-A3	50%	50%	52%	52%	--	100%
	3R-A4	10%	10%	10%	10%	--	--
	3R-TGO1	--	--	--	--	--	--
	3R-TGO2	--	--	--	--	--	--
	Total	100%	100%	100%	100%	--	100%
21L	21L-A1	10%	20%	5%	5%	--	--
	21L-A2	40%	35%	38%	38%	--	100%
	21L-A3	10%	10%	20%	20%	--	--
	21L-A4	20%	15%	12%	12%	--	--
	21L-A5	10%	10%	12%	12%	--	--
	21L-A6	10%	10%	13%	13%	--	--
	21L-TGO1	--	--	--	--	--	--
	21L-TGO2	--	--	--	--	--	--
	Total	100%	100%	100%	100%	--	100%

Source: Cincinnati/Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
PB Aviation, On-site observations and interview with LUK ATC personnel.

TABLE 5.2-7

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE DEPARTURE FLIGHT TRACK USE – DAYTIME

Runway End	Flight Tracks	SEP	MEP	METP	BJ	HELI	MIL
7	7-D1	85%					
	7-D2	10%				--	--
	7-D3	5%				--	--
	Total	100%				--	--
25	25-D1	40%	40%	55%	55%	--	--
	25-D2	55%	55%	42%	42%	--	--
	25-D3	5%	5%	3%	3%	--	--
	Total	100%	100%	100%	100%	--	--
3L	3L-TGO	100%	100%	--	--	--	--
	Total	100%	100%	--	--	--	--
21R	21R-TGO	100%	100%	--	--	--	--
	Total	100%	100%	--	--	--	--
3R	3R-D1	5%	5%	5%	5%	--	--
	3R-D2	20%	20%	50%	50%	--	100%
	3R-D3	30%	25%	20%	20%	--	--
	3R-D4	40%	35%	24%	24%	--	--
	3R-TGO1	--	--	1%	1%	--	--
	3R-TGO2	5%	15%	--	--	--	--
	Total	100%	100%	100%	100%	--	100%
21L	21L-D1	45%	40%	35%	35%		
	21L-D2	35%	30%	19%	19%	--	100%
	21L-D3	10%	10%	25%	25%	--	--
	21L-D4	5%	5%	20%	20%	--	--
	21L-TGO1	--	--	1%	1%	--	--
	21L-TGO2	5%	15%	--	--	--	--
	Total	100%	100%	100%	100%	--	100%

Source: Cincinnati/Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
PB Aviation, On-site observations and interview with LUK ATC personnel.

TABLE 5.2-8

Cincinnati Municipal-Lunken Airport

FUTURE (2007) ANNUAL AVERAGE DEPARTURE FLIGHT TRACK USE – NIGHTTIME

Runway End	Flight Tracks	SEP	MEP	METP	BJ	HELI	MIL
7	7-D1	85%					
	7-D2	10%				--	--
	7-D3	5%				--	--
	Total	100%				--	--
25	25-D1	40%	40%			--	--
	25-D2	55%	55%			--	--
	25-D3	5%	5%			--	--
	Total	100%	100%			--	--
3L	3L-TGO	--	--	--	--	--	--
	Total	--	--	--	--	--	--
21R	21R-TGO	--	--	--	--	--	--
	Total	--	--	--	--	--	--
3R	3R-D1	10%	15%	5%	5%	--	--
	3R-D2	20%	20%	50%	50%	--	100%
	3R-D3	30%	25%	20%	20%	--	--
	3R-D4	40%	40%	25%	25%	--	--
	3R-TGO1	--	--	--	--	--	--
	3R-TGO2	--	--	--	--	--	--
	Total	100%	100%	100%	100%	--	100%
21L	21L-D1	45%	45%	35%	35%		
	21L-D2	35%	30%	20%	20%	--	100%
	21L-D3	10%	10%	25%	25%	--	--
	21L-D4	10%	15%	20%	20%	--	--
	21L-TGO1	--	--	--	--	--	--
	21L-TGO2	--	--	--	--	--	--
	Total	100%	100%	100%	100%	--	100%

Source: Cincinnati/Northern Kentucky International Airport, Aircraft Operation Monitoring System, April 12 and March 21, 2001.
Lunken Airport Air Traffic Control Tower, Flight Strips.
PB Aviation, On-site observations and interview with LUK ATC personnel.

Future flight tracks are anticipated to be the same as the existing flight tracks and flight track utilization is anticipated to remain unchanged from the 2002 utilizations.

5.3 FUTURE BASELINE NOISE CONTOURS

The activity and operational data reflecting projected 2007 conditions were used as inputs to the INM to calculate 2007 noise exposure levels on an average annual day. **Exhibit 5.3-1** depicts these contours for levels of DNL 55dB, 60dB, 65dB, 70dB and 75dB. The Future Baseline NEM is provided in large-scale format in the map pocket at the end of this chapter.

Madeira
Norwood
The Village of Indian Hill
Fairfax
Mariemont
Cincinnati
55 DNL
60 DNL
65 DNL
70 DNL
75 DNL
Newtown
Dayton
Anderson
Fort Thomas
Southgate
Heights
Silver Grove
Melbourne
Cold Spring
Crestview

22
562
71
50
52
32
125
8
471
275
27

MADISON RD
ERIE AV
RED BANK RD
DELTA AV
WILLIAM H TAFT RD
MAIN ST
CLOUGH RD
HUNLE
WAYSIDE AV
BEECHMONT AV
SALEM RD
FOUR MILE RD
BURNEY LN
MARKLEY RD
SUTTON AV

LEGEND

- MAJOR ROAD
- SECONDARY ROAD
- COUNTY BOUNDARY
- CITY BOUNDARY
- AIRPORT BOUNDARY

January 2004

N

0 4000 Feet

PB PARSONS BRINCKERHOFF

CINCINNATI MUNICIPAL-LUNKEN AIRPORT PART 150 STUDY

NOISE CONTOURS IN 2007

EXHIBIT 5.3-1

PB AVIATION

5.3.1 Area

The acreage encompassed by the future baseline DNL 55 dB, 60dB, 65dB, 70 dB, and 75dB noise contours is listed in **Table 5.3-1**. Overall, the area of the DNL 55 dB or greater noise contours is expected to be approximately 7.9 square miles. This is bigger than the 2002 contour area of 7.1 square miles. The increased contours size is a result of operation changes. In the future, daily activity for all aircraft categories is projected to increase from 362 in 2002 to 408 operations in 2007 which will generate more noise.

TABLE 5.3-1

Cincinnati Municipal-Lunken Airport

AREA WITHIN THE FUTURE (2007) NOISE CONTOURS (SQUARE MILES AND ACREAGE)

Noise Contours	Area in Square Miles	On-Airport Property Within Contour (acres)	Off-Airport Property Within Contour (acres)	Total Area Within Each Contour (acres)
DNL 55 to 60 dB	5.092	70	3,750	3,259.1
DNL 60 to 65 dB	1.769	325	807	1,131.8
DNL 65 to 70 dB	0.571	299	67	365.9
DNL 70 to 75 dB	0.229	148	0	146.4
Greater than DNL 75	0.237	15	0	151.9
Total	7.9	996	4,624	5,054.7

Source: PB Aviation.

5.3.2 Housing and Population Impacts

The future baseline noise exposure contours were examined to determine the number of housing units and population anticipated to be affected by each. U.S. census information for 2000 was used to determine the number of housing units encompassed by each contour level. The housing units and population numbers were developed by calculating the percentage of the census tract that was within the noise contour.

Impacts to residents by air traffic flow are similar to the existing condition. However, the housing units impacted by DNL 55dB or greater are anticipated to increase from 1,677 units in 2002 to 2,304 units in 2007, the population numbers are also anticipated to increase from 4,105 persons in 2002 to 4,513 persons in 2007. A summary of the housing units and population numbers affected by noise levels exceeding DNL 55 dB is provided **Table 5.3-2**.

TABLE 5.3-2

Cincinnati Municipal-Lunken Airport

FUTURE (2007) NOISE IMPACTS TO HOUSING AND POPULATION

Municipality	75 + DNL Contour		70-75 + DNL Contour		65-70 + DNL Contour		55-65 + DNL Contour		Totals	
	Housing Units	Population	Housing Units	Population	Housing Units	Population	Housing Units	Population	Housing Units	Population
Cincinnati, OH Fairfax, OH Mariemont, OH Anderson, OH Dayton, KY Fort Thomas, KY Heights, KY Silver Grove, KY	0	0	0	0	0	0	2,304	4,513	2,304	4,513

Source: PB Aviation

5.3.3 Potentially Incompatible Land Uses

The Federal Aviation Administration (FAA) has developed land use compatibility guidelines relating to sound levels generated by airport activity to various types of land use. These guidelines, presented in FAR Part 150 and reproduced in Table 3.1-1, establish compatibility guidelines for residential, public, commercial, manufacturing and production, and recreational uses. As determined by these guidelines, all land uses are generally compatible with airport operations if they are exposed to noise levels below DNL 65 dBA.

The future baseline noise exposure contours were examined to determine whether these specific noise-sensitive land uses were experiencing aircraft noise levels of DNL 65 dB or greater noise contour. No residences were found to be located within the DNL 65 dB or greater noise contour. No noise sensitive community facilities were found to be located within the DNL 65 dB or greater noise contours.